KARSULIN, M., MARKOVIC, T.

"Corrosion of lead in the petroleum industry. III." p. 393. (NAFTA, Vol. 3, no. 12, Dec. 1952, Zagreb.)

SO: Monthly List of East European Accessions, Vol. 2, #3, Library of Congress August, 1953, Uncl.

KARSULIN, M.

230. COKING EXPERIMENTS WITH RASA COAL FOR METALLURGICAL PURPOSES.

Karsulin, M. and Markovic, T. (Kem. Ind., Zagreb, 1953, vol. 2, 291; abstr. in Chem. Abstr., 1954, vol. 48, 1656). The coal from Rasa containing about 1% combustible sulphur, yields a coke with 5-6% combustible sulphur, which swells to a high degree during coking. Results of laboratory experiments are presented showing that with additions of 0.14 g of montmorillonite and 0.01 g of sodium carbonate per 5 g of coal, a coke is obtained containing 1.2% combustible sulphur, and having a reduced swelling tendency. Ultramarine is formed during the coking process, by the reaction of sulphur, montmorillonite, and sodium carbonate.

C.A.

KARSULIN, M.

Karsulin, M.; Lahodny, A. "Determination of hydrar-gillite content in bauxites." p. 340. (Priroda, Vol. 18, no. 6/7, 1953. Zagreb.)

SO: Monthly List of East European Accessions, Vol. 3, no. 3, March 1954. Library of Congress. Uncl.

KARSULIN, M.

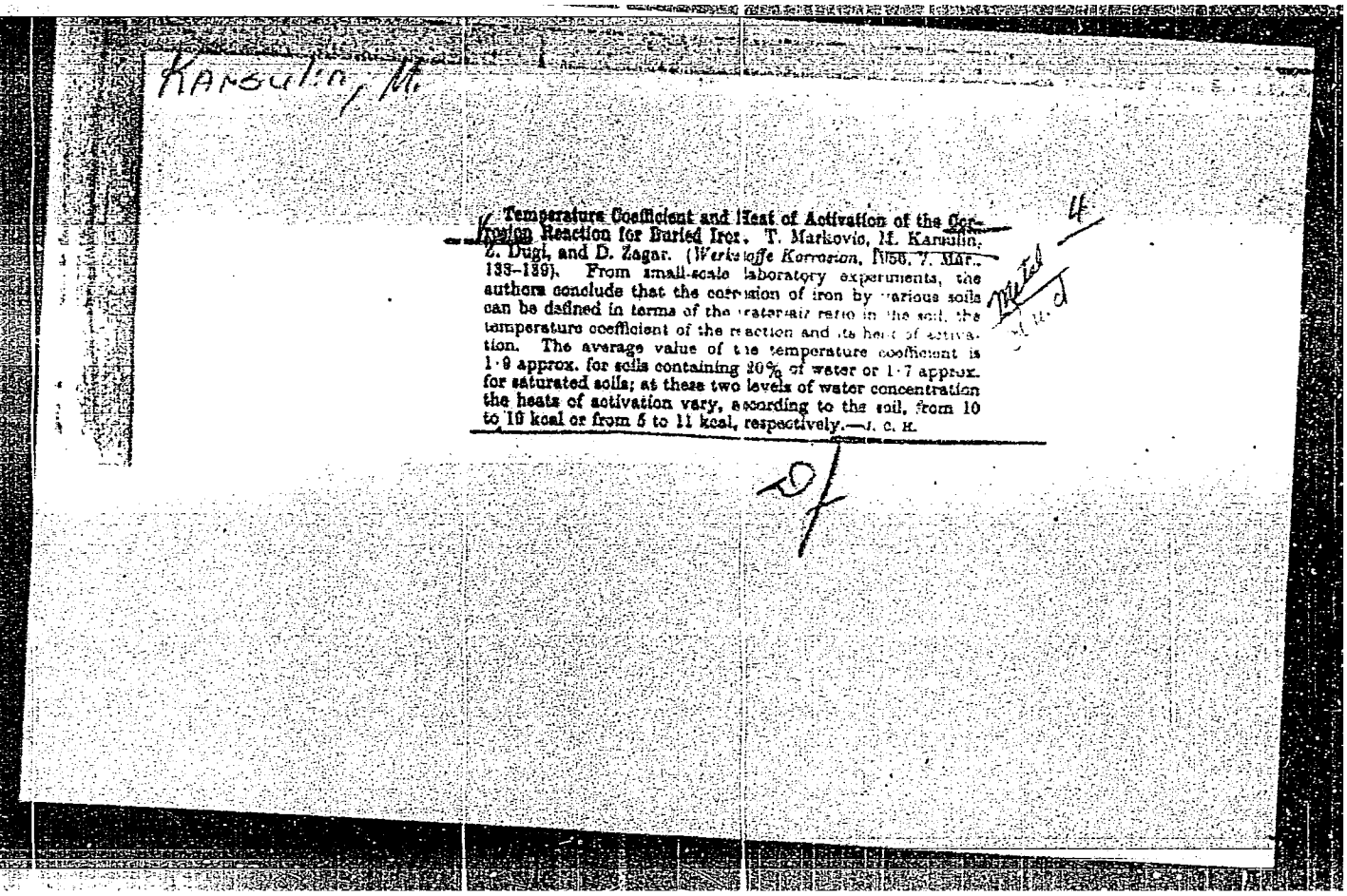
"The genesis of aluminosilicate in bauxites." p. 461. (Priroda. Vol. 18, no. 6/7, 1953. Zagreb).

SO: Monthly List of East European Accessions, Vol. 3, no. 3, Library of Congress. March 1954. Uncl.

KARSULIN, M.

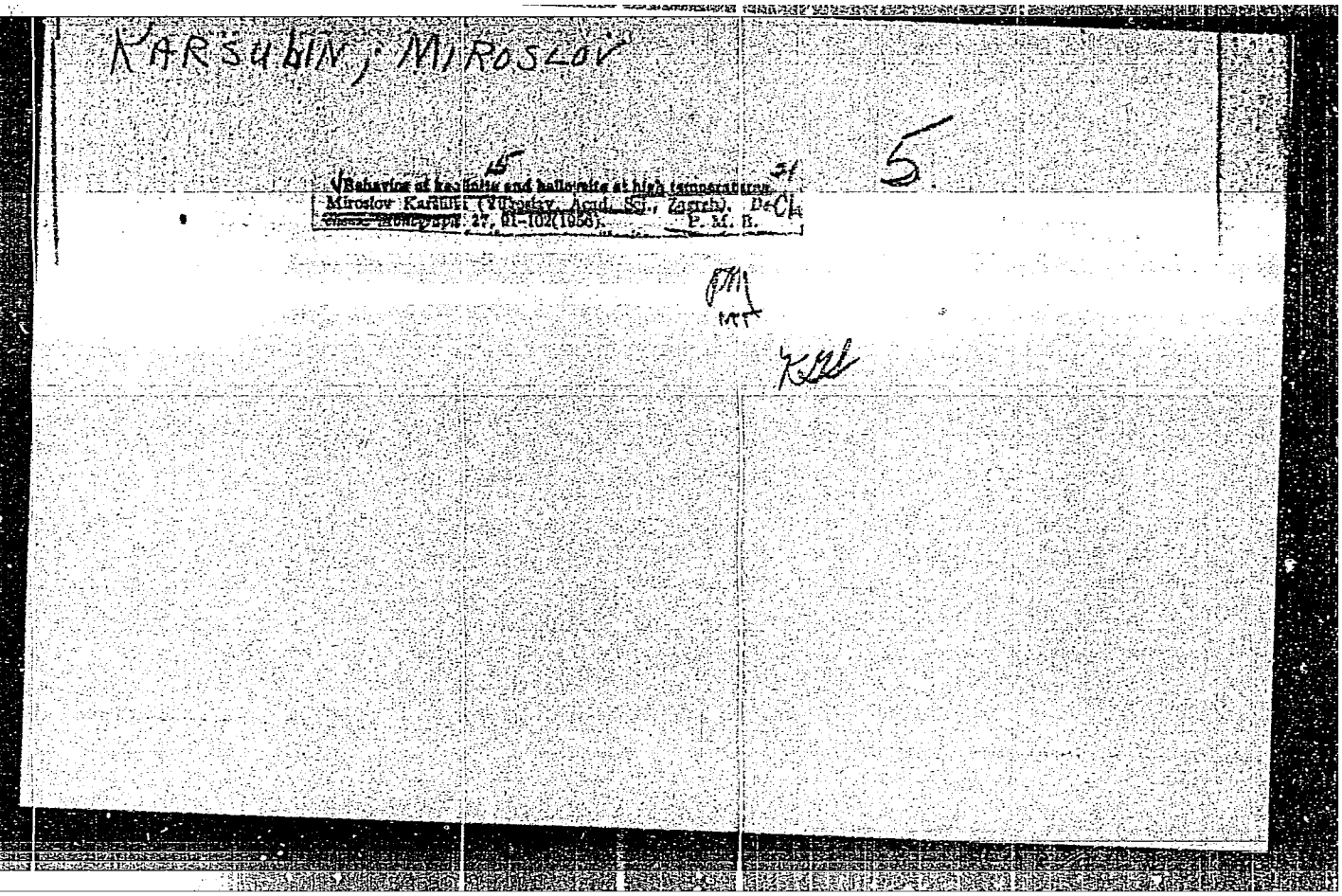
The structure and properties of synthetic montmorillonite. I. The exchange capacity and thermal behavior of synthetic magnesium and sodium montmorillonite. M. Karšulin and V. Kobasa (Univ. Zagreb, Zagreb, Yugo.). Glasnik Kem. Društva Beograd 23, 843-58(1958); cf. C.A. 50, 6023i. Mg (I) and Na (II) montmorillonites, prepd. hydrothermally by treating a mixt. of Al_2O_3 + 3.73 SiO_2 with 0.2-1.0 moles of MgO or 0.1-1.0 mole of Na_2O at 400° and 700 atm. for 4 days, were analyzed and then investigated for exchange capacity, structure, and thermal properties. I showed capacities varying from 66 to 114 m.eq./100 g., with a max. at about 0.5 mole added MgO; the compn. varied from essentially kaolinite in the case of small amts. of MgO to I alone where the added MgO was more than 0.5 mole. II showed capacities ranging from 7 to 150 meq./100 g., with the max. at about 0.7 mole of Na_2O; the compn. varied from a mixt. of II, kaolinite, and analcite when the amts. of Na_2O were small, to almost pure analcite. A combination of dehyration studies and plots of extractibilities of Al^{3+} against time gave an indication of the Al(VI)/Al(IV) (octahedral/tetrahedral) ratio. For 2 of the prepns. (3 moles MgO and 1 mole MgO) the detd. ratios were 1.67 and 2.50, resp., as compared to the calcd. ratios of 1.08 and 2.92.

Philip S. Baker



Karaulin, M.

Temperature Coefficient and Heat of Activation of the Corrosion Reaction for Buried Iron. T. Marković, M. Karaulin, Z. Dugi, and D. Zagar. (*Werkstoffe Korrosion*, 1956, 7, Mar., 133–139). From small-scale laboratory experiments, the authors conclude that the corrosion of iron by various soils can be defined in terms of the water:air ratio in the soil, the temperature coefficient of the reaction and its heat of activation. The average value of the temperature coefficient is 1·9 approx. for soils containing 20% of water or 1·7 approx. for saturated soils; at these two levels of water concentration the heats of activation vary, according to the soil, from 10 to 16 kcal or from 5 to 11 kcal, respectively.—J. C. H.



KARŠULIN, MIROSLAV

Behavior of kaolinite and halloysite at high temperatures. Miroslav Karšulin (Vjesnik Acad. Sci., Zagreb). Bull. Chim. Technol. Yugoslavia 27, 91-102(1958). P. M. B.

COUNTRY : Yugoslavia D
CATEGORY :

ABS. JOUR. : RZKhim., No. 20 1959, No. 71059

AUTHOR : Karsulin, M.
INST. :
TITLE : Study of Asbestos from Stragar I Deposit

ORIG. PUB. : Zast. mater., 1958, 6, No 9, 347-358

ABSTRACT : Results of chemical, thermic, electron microscopic, and roentgenographic studies of chrysotile asbestos. Chemical composition (in %): SiO_2 41.33, MgO 39.47, Al_2O_3 0.31, Fe_2O_3 4.48, CaO 0.73, decrease in weight on calcination 13.53; formula $Mg_6[OH]_6 \cdot [Si_4O_{11}] \cdot H_2O$. Endothermic effect is observed at 715°, exothermic - at 775° and 800°. Electron microscope photographs show that filaments of the mineral have a tubular structure. High mechanical strenght is due to extensive interlacing of these filaments.

G. Volkov.

CARD:

1

KARSULIN, Miroslav

On the mechanism of the corrosion of lead in water and its solutions. Rad mat fiz teh JAZU no.314:187-205 '57 (on cover 1959). (EEAI 9:9)
(Lead) (Corrosion and anticorrosives) (Water)

SARC-LAHODNY, Olga; KARSULIN, Miroslav

Structural changes in kaolinite between 100° and 600°C. Rad mat fiz teh JAZU no.319:185-203 '61.

KARTSYNEL', M. B.

Kartsynel', M. B. - "The problem of the preparation of hydrogen peroxide on a crude coal-tar base," Authors: M. B. Kartsynel', R. B. Yampol'skaya, M. S. Vitukhnovskaya and M. A. Dokukin. Nauch. zapiski (Dnepropetr. gos. un-t), Vol XXXIII, 1948, p. 43-45

SO: U-5240, 17, Dec. 53 (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

KARTSYNEL', M.B.; CHERNIKOV, A.I.

Adsorption of sulfur dioxide on a chromium-tin catalyst.
Trudy DKHTI no.6:66-71 '58. (MIRA 13:11)
(Sulfur dioxide) (Adsorption)

KARTSYNEL', M.B.; YANKOVSKAYA, A.S.

Measurement of the pressure of water vapor over ferrous sulfate crystal hydrates. Trudy DKHTI no.10:123-126 '60. (MIRA 14:1)
(Iron sulfate) (Vapor pressure)

KHANIN, I.M.; IVANOV, S.M.; KARTSYNEL', M.B.

Hydrodynamics of the reactor for the nonsaturation production of ammonium sulfate. Koks i khim. no.7:37-42 Jl '61. (MIRA 14:9)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.
(Ammonium sulfate)

KHANIN, I.M.; IVANOV, S.M.; KARTSYNEL', M.B.

Studying the flow distribution in hollow apparatus with different types of gas inlets. Dop.AN URSR no.3:316-320 '61. (MIRA 14:3)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut. Predstavleno akademikom AN USSR N.N.Dobrokhotovym.
(Gas flow)

KHANIN, I.M.; KARTSYNEL'M.B.; YAKOVLEV, V.I.; PORTYNENKO, V.A.; BONDARENKO, I.P.

Intensification of the process of benzene recovery. Koks i khim. no.9:40-43 '62. (MIRA 16:10)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut (for Khanin, Kartsynel', Yakovlev). 2. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy koksokhimicheskoy promyshlennosti (for Portynenko). 3. Zhdanovskiy koksokhimicheskiy zavod (for Bondarenko).
(Shrubber (Chemical technology))
(Benzene)
(Coke industry--By-products)

KHANIN, I.M., doktor tekhn. nauk; KARTSYNEL', M.B., kand. khim. nauk; IVANOV, S.M.

Absorption of ammonia in cyclone reactors with sprayers. Khim. prom. [Ukr.] no.2:6-10 Ap-Je '63. (MIRA 16:8)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.

KARTUNOV, G. S.

B/065/61/000/004/004/011
E194/E284

AUTHORS: Gerasimenko, N. M., Yastrebov, G. I., Badykhtova, K. M., Gol'dshteyn, D. L., Pisarchik, I. N., Zhadanovskiy, N. B., Finelonov, V. P. and Kartunov, G. S.

TITLE: Hydrofining of Lubricants

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1961, No. 4, pp. 27-31

TEXT: Lubricants produced at modern refineries running on eastern high-sulphur crudes are finished with earth but the lubricants obtained are not of satisfactory quality, particularly in respect of colour, and the yield is low. Accordingly, VNII NP and GrozNII have investigated catalytic refining of lubricants in the presence of hydrogen (hydrofining) to replace earth treatment. Various distillate and residual lubricating oils produced from sulphurous crudes by phenol and furfurol extraction were hydrofined under laboratory conditions. The work showed that hydrofining with aluminium-cobalt-molybdenum catalyst considerably improved the colour, somewhat improved the viscosity index and

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oxidation stability and reduced the coke number. There was some reduction in viscosity and increase in pour point. Depending upon the properties of the feed the output of hydrofined oil was 98-99.5%. The Novokuybyshevskiy neftepererabatyvayushchiy zavod (Novokuybyshevsk refinery), together with the Kuybyshev NII NP organized a plant trial on hydrofining of various de-waxed lubricating oil raffinates from sulphurous crudes. Representatives of VNII NP, GrozNII and Giprogroznefti participated in the trials. The lubricating oils were hydrofined on a reconstructed plant for hydrofining of diesel fuels. Tests were made on two distillates, one a spindle and the other a machine oil, and one residual oil. The de-waxed feed passed to heat exchangers where it was heated by finished oil issuing from the reactor and was then finally heated to temperature in a furnace before passing to the reactor. Before entering the furnace the feed was mixed with hydrogen containing gas and was then passed to the top of columns loaded with aluminium-cobalt-molybdenum catalyst. On leaving the column the product passed through the heat exchangers, thence to a gas

Card 2/5

separator and the finished product was vacuum stripped. The main characteristics of the catalyst are given. The oils produced were spindle oil, machine oil and residual oil with viscosity of 20.66 centistokes at 100°C. The results of hydrofining and of earth treatment are compared in Table 3. It will be seen that the hydrofined oils have much better colour, lower coke number, lower sulphur content, higher viscosity index but that there is some loss of viscosity and 1-2° higher pour point. Preliminary technical and economic calculations indicate that the capital costs of constructing hydrofining and earth treatment plant is about the same but with hydrofining running costs are about 32% less than with clay treatment. There are 1 figure and 3 tables.

ASSOCIATION: NK NPZ

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GERASIMENKO, N.M.; YASTREBOV, G.I.; BODYSHTOVA, K.M.; GOL'DSHTEYN, D.L.; PISARCHIK, A.N.; ZHADANOVSKIY, N.B.; FINELONOV, V.P.; KARTUNOV, G.S.

Hydrofining of oils. Khim.i tekh.topl.i masel no.4:27-31 Ap '61. (MIRA 14:3)

1. Novokubyshevskiy neftepereabatyvayushchiy zavod.
(Lybrication and lubricants)

KOZHOV, M.M., prof., doktor biolog.nauk; MISHARIN, K.I., dotsent, kand. biolog.nauk. Prinimali uchastiye: TOMILOV, A.A., kand.biolog.nauk; POPOV, P.F., kand.biolog.nauk; YEGOROV, A.G., kand.biolog.nauk; TUGARINA, P.Ya., kand.biolog.nauk; TYUMENTSEV, N.V., nauchnyy sotrudnik; ASKHAYEV, M.G., nauchnyy sotrudnik; NIKOLAYEVA, Ye.P., nauchnyy sotrudnik; KARTUSHIN, A.I., nauchnyy sotrudnik; STEKLYAGOVA, M.A., nauchnyy sotrudnik; KORYAKOV, Ye.A.; SPELIT, K.K., inzh.; ARTYUNIN, I.M., inzh.; OKUNEV, P.M.; SHNIPER, R.I., rabotnik. SHAFIROVA, A.S., red.; SOROKINA, T.I., tekhn.red.

[Fishes and commercial fishing in Lake Baikal] Ryby i rybnoe khoziaistvo v basseine ozera Baikal. Irkutskoe, knizhnoe izd-vo, 1958. 745 p. (MIRA 12:4)

1. Sotrudniki Irkutskogo gosuniversiteta (for Misharin, Tomilov, Popov, Yegorov, Tugarina). 2. Sotrudnik Baykal'skoy limnologicheskoy stantsii Akademii nauk SSSR (for Koryakov). 3. Baykalrybtrest (for Spelit, Artyunin). 4. Gosplan Buryat-Mongol'skoy ASSR (for Shniper). (Baikal, Lake--Fisheries)

KARTUSHIN, Veniamin Mikhaylovich; GAPOCHKO, G.F., redaktor; SHAMAROVA, T.A., redaktor izdatel'stva; ROMANOVA, V.V., tekhnicheskiy redaktor

[Vasilii Vasil'evich Vitkovskii; geodesist, scholar and pedagogue] Vasilii Vasil'yevich Vitkovskii; geodezist, uchenyi i pedagog. Moskva, Izd-vo geodez. lit-ry, 1956. 97 p. (MLRA 10:3)
(Vitkovskii, Vasilii Vasil'evich, 1856-1924)

KARTUSHIN, V.M.

Physical geography of Bennet Island. Sib. geog. sbor. no.2:69-99 '63. (MIRA 16:11)

KARTUSHIN, V.M.; SHVEDOV, A.P.

Problems of geobotanical mapping discussed at the conference in Novosibirsk. Sib.geog.sbor. no.1:225-230 '62.
(MIRA 16:2)

(Phytogeography--Maps)

KARTUSHIN, V.M.

Glaciation of Bennett Island. Trudy AANII 224:166-176 '63
(MIRA 18:1)

Vegetation of Bennett Island. Ibid.:177-179

LEBEDEV, A.T.; KARTUSHIN, V.P.; UCHURKHANOV, M.M.

Effect of nuclear radiation on the flotation process. TSvet. met. 38 no.6:11-14 Je '65. (MIRA 18:10)

KARTUSHINA, L.I.

Occupational Diseases

Dissertation: "Oxygen- and Gas-Forming Bacteria of the Intestines in Fermentative Diarrhea." Cand Med Sci, Tashkent Medical Inst, 7 Apr 54. (Pravada Vostoka, Tashkent, 27 Mar 54).

SO: SUM 213, 20 Sep 54

KARTUSHINA, L.I.

Pathohistological changes during a test for the virulence of diphtheria bacteria. Med.zhur.Uzb. no.5:44-49 My '58.
(MIRA 13:6)

1. Iz kafedry mikrobiologii (zav. - prof. P.F. Samsonov) Tashkentskogo gosudarstvennogo meditsinskogo instituta.
(DIPHTHERIA--BACTERIOLOGY)

KARTUSHINA, L. I.

USSR/Human and Animal Morphology - Pathological Anatomy. S

Abs Jour : Ref Zhur Biol., No 5, 1959, 21648

Author : Kartushina, L.I.
Inst :
Title : Histopathological Changes in Tests on the Virulence of Diphtheria Bacteria

Orig Pub : Med. zh. Uzbekistana, 1958, No 5, 44-49

Abstract : No abstract.

Card 1/1

KARTUSHINA, L.I.

Evaluation of a method for determining the virulence of diphtheria bacteria by means of intradermal injection of primary cultures. Med.zhur.Uzb. no.12:78-81 D '58. (MIRA 13:7)

1. Iz kafedry mikrobiologii (zav. - prof. P.F. Samsonov) Tashkentskogo gosudarstvennogo meditsinskogo instituta.
(DIPTHTHERIA--BACTERIOLOGY)

KARTUSHINA, L.I., kand.med.nauk

Streptococci of the tonsils and their role in diphtheria. Nauch. trudy uch.i prak.vrach. no.2:146-154 '61. (MIRA 15:8)

1. Iz kafedry mikrobiologii Tashkentskogo gosudarstvennogo meditsinskogo instituta (zav. kafedroy - prof. P.F.Samsonov).
(TONSILS--MICROBIOLOGY) (DIPHTHERIA) (STREPTOCOCCUS)

BUSSEL', L.G.; FEYGIN, G.A.; KARTUSHINA, L.I.; DAMKAS, Kh.M.

Diphtheria carrier with chronic tonsillitis. Vest. otorin. no.1:60-64 '63. (MIRA 16:9)

1. Iz kafedry bolezney ukha, nosa i gorla (zav. - prof. I.Yu. Laskov) i kafedry mikrobiologii (zav. - prof. P.F. Samsaonov) Yashkentskogo meditsinskogo instituta.
(TONSILS—DISEASES) (DIPHTHERIA—MICROBIOLOGY

KARTUSHINA, I.I.; DAMKAS, Kh.M.

Effect of antibiotics on diphtheria bacilli in mixed and pure cultures. Sbor.nauch.trud.TashGMI 22:338-343 '62. (MIRA 18:10)

1. Kafedra mikrobiologii (zav. kafedroy - prof. P.F.Samsonov) Tashkentskogo gosudarstvennogo meditsinskogo instituta.

KARTUSHINA, I.I.

Characteristics of streptococci isolated from diphtheria patients. Sbor.nauch.trud.TashGMI 22:344-347 '62.

(MIRA 18:10)

1. Kafedra mikrobiologii (zav. kafedroy - prof. P.F.Samsonov) Tashkentskogo gosudarstvennogo meditsinskogo instituta.

86153

S/076/60/034/008/016/039/XX
B015/B063

26.1610

AUTHORS: Stromberg, A. G., Kartushinskaya, A. I.

TITLE: Polarographic Study of Inorganic Redox Systems. I. Influence of the Parameters of the Capillary Tube on the Anode and Cathode Waves in the Ti^{4+} - Ti^{3+} System

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 8, pp. 1684 - 1690

TEXT: The appearance of a separate anode and cathode wave at a dropping amalgam electrode has been explained by A. G. Stromberg (Refs.1,2) on the strength of the theory of delayed discharge ionization, and (Ref.3) by equations regarding the dependence of the half-wave potential of an irreversible cathode wave on the dropping time, for the case of a discharge of metal ions on a dropping mercury electrode under the formation of metal atoms. These equations are valid also for redox systems and show that the difference between the half-wave potentials of the anode and cathode waves is bound to diminish with an increase of the dropping time.

Polarographic Study of Inorganic Redox Systems. I. Influence of the Parameters of the Capillary Tube on the Anode and Cathode Waves in the Ti^{4+} - Ti^{3+} System

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For checking this assumption which corresponds to the theory of delayed discharge ionization, the authors studied the influence of the capillary parameters, i.e., the dropping time in the interval from 1.2 to 20 sec on the half-wave potential of the cathode and anode waves of the redox system Ti^{4+} - Ti^{3+} at 16°-17°C in solutions having the following composition: $5 \cdot 10^{-3}$ M Ti^{4+} + Ti^{3+}, 0.23 M HCl, and 0.005% gelatin. A visual polarograph and an M-21/2 (M-21/2) mirror galvanometer (sensitivity, 10^{-9} a/mm/m) were used for the purpose. The polarograms obtained with three different dropping periods show the cathode and anode waves to be separate, i.e., the electrodic process is irreversible and can be schematically represented by $Ti^{4+} + e = Ti^{3+}$. When the dropping time changes from 1 to 4 sec (log τ from 0 to 0.6), the cathode and anode potentials become similar. Quite surprisingly, the function $\varphi_{1/2} = f(\log\tau)$ changes in the opposite direction in the dropping time interval from

Polarographic Study of Inorganic Redox Systems. I. Influence of the Parameters of the Capillary Tube on the Anode and Cathode Waves in the Ti^{4+} - Ti^{3+} System

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4 to 20 sec (log τ from 0.6 to 1.3), i.e., the difference between anode and cathode potentials increases with an increase of the dropping time. The question was examined as to whether the potential depends on the outflow rate of mercury, and the half-wave potential was found to be independent on the amount of mercury flown out. This is in accordance with the above-mentioned theory. It is assumed that a more exact formulation of the equations applied will make it possible to clarify the dependence of the potential $\varphi_{1/2}$ on the dropping time in the 4 - 20 sec interval. The sum of discharge and ionization coefficients was calculated from the inclination of the cathode and anode waves, and was found to be close to 1. The normal current density for the exchange Ti^{4+} - Ti^{3+} in 0.23 M HCl solution was found to be j_o^o - 0.78 $ma \cdot cm^{-1} millimole^{-1}$ for pH = 0. The instability constant of the complex ion $TiCl_6^{2-}$ is given as $2 \cdot 10^{-11}$. Thus, the results of the present work prove the irreversible course of the process concerned, considering the existence of a slow

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Polarographic Study of Inorganic Redox Systems. I. Influence of the Parameters of the Capillary Tube on the Anode and Cathode Waves in the Ti^{4+} - Ti^{3+} System

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B015/B063

discharge ionization. There are 2 figures and 9 references: 5 Soviet, 1 US, and 1 German.

ASSOCIATION: Tomskiy politekhnicheskiy institut Kafedra fizicheskoy i kolloidnoy khimii (Tomsk Polytechnic Institute, Chair of Physical and Colloid Chemistry)

SUBMITTED: July 16, 1958

Card 4/4

S/200/61/000/011/002/005
D203/D304

AUTHORS: Stromberg, A.G. and Kartushinskaya, A.I.

TITLE: A polarographic study of the composition of complexes taking part in the electrode reaction in the system Ti (IV) - Ti (III) in hydrochloric acid solutions

PERIODICAL: Akademiya nauk SSSR. Sibirskoye otdeleniye. Izvestiya, no. 11, 1961, 88-97

TEXT: The aim of this work was to determine the composition of complex ions taking part in the electrode reaction of the system Ti (IV) - Ti (III) in HCl solutions of different H^+ and Cl^- concentrations and to elucidate the mechanism of the process: Ti(IV + e $\rightleftharpoons$ Ti (III), as well as determine the equilibrium potential and the exchange current for this system. The mercury dropping cathode and other equipment, as well as the polarographic method used in these experiments have been described by the authors in a previous publication and the theoretical part of their work in another one. 59 Experiments were carried out in 5 series

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of tests, using HCl, HCl + KCl, and HCl + $HClO_4$ as the electrolytes, on the assumption that neither K^+ nor ClO_4^- ions participated in the complex-formation by Ti(IV) and Ti(III). The results are tabulated. The consecutive steps of the electrode process may be represented by the following reactions ... в сериях 1 и 2 (in series 1 and 2

$$Ti(OH)_2Cl_2 + H^+ \rightleftarrows [Ti(OH)Cl]^{3+} + H_2O + Cl^-,$$
$$[Ti(OH)Cl]^{3+} + e \rightleftarrows [Ti(OH)Cl]^{2+} \quad (12)$$
$$[Ti(OH)Cl]^{2+} + H^+ \rightleftarrows Ti^{3+} + H_2O + Cl^-;$$

в сериях 3 и 4 (in series 3 and 4)

$$[TiOHCl]^{2+} + e \rightleftarrows [TiOHCl]^+,$$
$$[TiOHCl]^+ + H^+ \rightleftarrows Ti^{3+} + H_2O + Cl^-. \quad (13)$$

The authors calculated the composition of Ti(IV) and Ti(III) complexes which are preponderant in the solution in the equilibrium state and of

A polarographic study ...

those taking part in the electrode reaction, the first having the composition: $Ti(OH)_2Cl_2$ or $(TiOHCl)^{++}$ and $Ti^{(III)}$ and those taking part in the electrode process: $(TiOHCl)^{++}$ and $(TiOHCl)^{+}$. The standard electrode potential and the standard exchange current density were calculated for the electrode reaction of Ti(IV) and Ti(III) ions recharging in HCl solutions. There are 5 tables and 10 references: 5 Soviet-bloc and 5 non-Soviet-bloc.

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk Polytechnic Institute)

SUBMITTED: December 26, 1960

Card 3/3

STROMBERG, A.G.; KARTUSHINSKAYA, A.I.

Polarographic determination of the composition of complexes directly participating in the electrode process and predominant in the solution, and calculation of the exchange current and equilibrium potential in inorganic oxidation-reduction systems. Zhur. fiz. khim. 35 no.5:1058-1063 My '61. (MIRA 16:7)

1. Tomskiy politekhnicheskiy institut.
(Oxidation-reduction reaction)
(Titanium compounds) (Electromotive force)

KARTUSHINSKAYA, A.I.; STROMBERG, A.G.

Polarographic study of the Ti^{IV} .. Ti^{III} system in solutions of hydrobromic acid. Zhur.neorg.khim. 7 no.2:291-297 F '62. (MIRA 15:3)

1. Tomskiy politekhnicheskiy institut.
(Titanium compounds) (Hydrobromic acid) (Polarography)

L 18311-63 EWP(q)/EWT(m)/BDS AFFTC/ASD/ESD-3 RM/JD/RH

ACCESSION NR: AP3004976 S/0076/63/037/008/1793/1799

AUTHORS: Stromberg, A. G.; Kartushinskaya, A. I.

TITLE: Polarographic study of the composition of complexes in the system titanium (4)-titanium (3) in sulfuric acid solution, with respect to their concentration and participation in the electrode reaction

SOURCE: Zhurnal fiz. khimii, v. 37, no. 8, 1963, 1793-1799

TOPIC TAGS: titanium (4), titanium (3), sulfuric acid, TiHSO sup 3 plus sub 3, TiHSO sup 2 plus sub 4, Ti(OH)(HSO sub 4) sup 2 plus, Ti sup 3 plus.

ABSTRACT: The polarographic method of determining the composition of participating complexes in electrode reaction was applied to the oxidizing reduction system titanium (4)-titanium (3) to explain the mechanism of the electrode process in sulfuric acid solution. Four series of runs were conducted to investigate one effect of the change in concentration of H^+, HSO_4^- and SO_4^{2-} ions upon the anodic and cathodic potential of the irreversible polarographic wave in the system Ti (4)-Ti (3) in sulfuric acid solutions. The composition of the complexes has been calculated and a mechanism for the electrodic process has been proposed based on experimental data for the slope of the curve depicting the half

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ACCESSION NR: AP3004976

wave potential (cathodic or anodic) as a function of the logarithm of the corresponding ion concentration and on some additional evidence. It has been shown that complexes $TiHSO_4^{3+}$ and $TiHSO_4^{2+}$ participate directly in the electrodic process, although complexes $Ti(OH)(HSO_4)$ sup 2+ and Ti^{3+} predominate in the solution. The standard exchange current density and standard electrode potential of the system Ti (4)-Ti (3) in sulfuric acid solutions have been calculated. Orig. art. has: 3 tables, 17 equations, 5 figures.

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk polytechnical institute)

SUBMITTED: 25Nov61 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: CH NO REF SOV: 007 OTHER: 003

Card 2/2

STROMBERG, A.G. (Tomsk); KARTUSHINSKAYA, A.I. (Tomsk)

Polarographic study of the composition of the complexes predominant in solution and present in the electrode reaction in the system titanium (IV) - titanium (III) in sulfuric acid solution. Zhur. fiz.khim. 37 no.8:1793-1799 Ag '63. (MIRA 16:9)

1. Tomskiy politekhnicheskiy institut.
(Titanium compounds) (Polarography)

STROMBERG, A.G.; KARTUSHINSKAYA, A.I.

Polarographic study of the mixed potential in a solution of two oxidation-reduction systems. Elektrokhimiia 1 no.10:1291-1294 O '65. (MIRA 18:10)

1. Tomskiy politekhnicheskiy institut imeni Kirova.

KARTUSHOV, K. I.

KARTUSHOV, K. I.: "The formation of practical skills and habits in the process of teaching physics in the sixth and seventh classes". Leningrad State Pedagogical Inst imeni A. I. Gertsen, Chair of Methodology in Teaching Physics. (Dissertations for the Degree of Candidate of Pedagogical Sciences.)

SO: Knizhnaya Letopis' No. 50. 10 December 1955. Moscow.

Kartushov, K.I

AUTHOR: Kartushov, K.I. (Tambov) 47-6-7/37

TITLE: Practical Controlled Work in the 6th - 7th Classes (Prakticheskiye kontrol'nyye raboty v VI - VII klassakh)

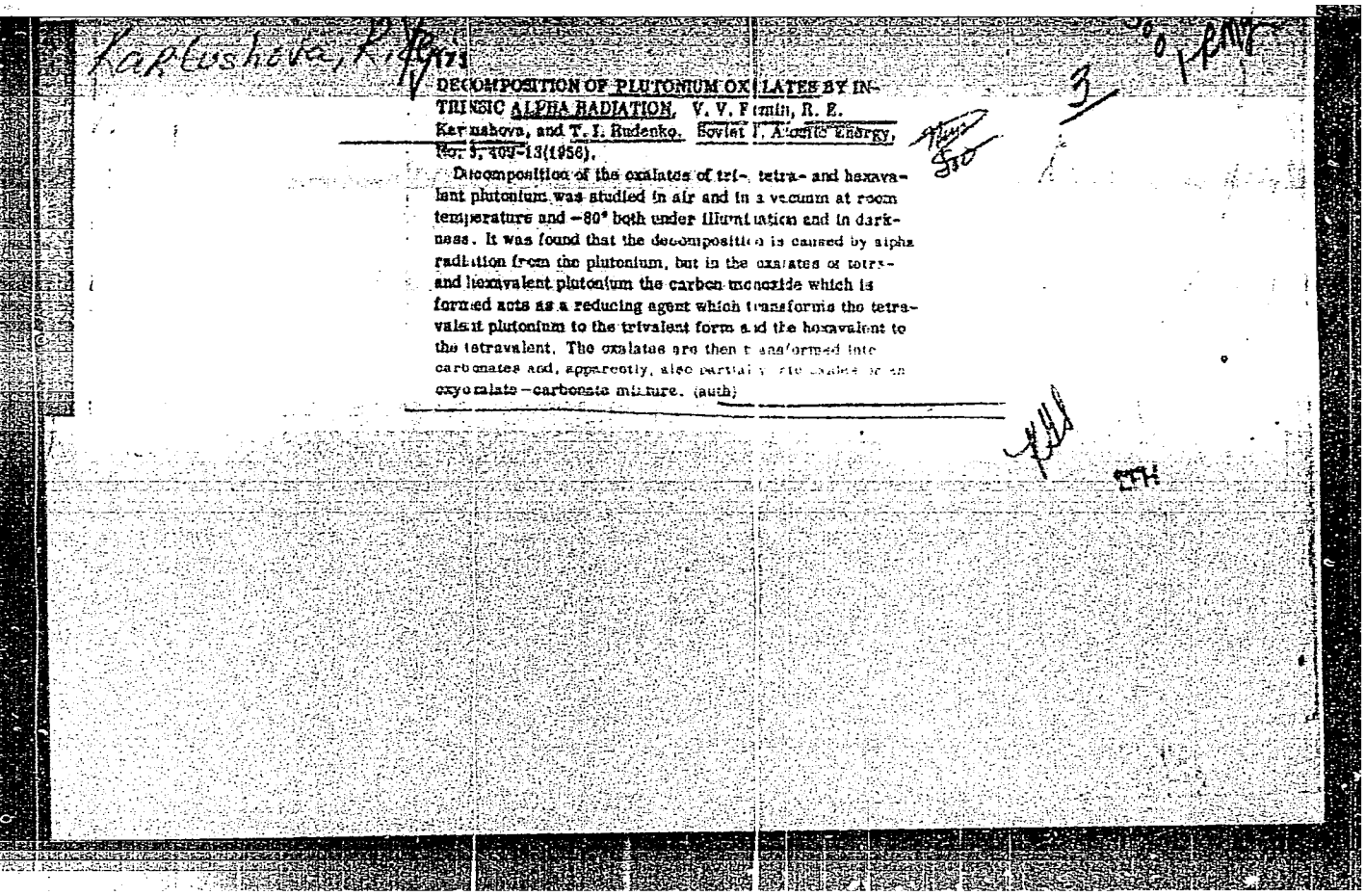
PERIODICAL: Fizika v Shkole, 1957, # 6, pp 37 - 39 (USSR)

ABSTRACT: The author is of the opinion that in addition to checking the students' theoretical knowledge, their ability to solve practical problems must also be checked. The examination should cover the quality and speed of practical work. The checking of the results of the students' practical training is one of the most important parts of polytechnical instruction.

The article contains 31 practical problems for students of the 6th and 7th class which the author has used during many years at the 9th and 51st secondary schools in Tambov

AVAILABLE: Library of Congress

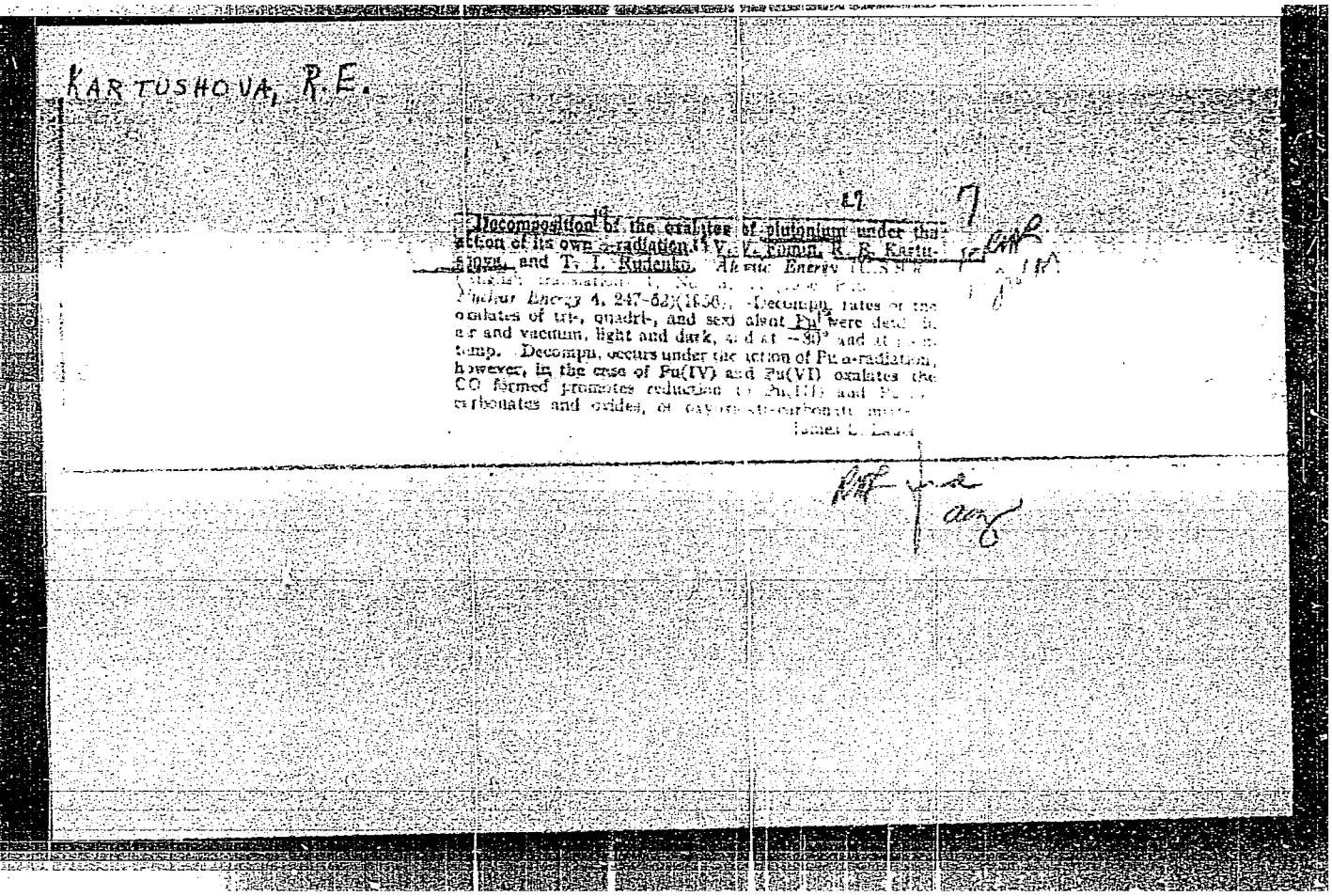
Card 1/1



Kaplushko, K.Ya.

DECOMPOSITION OF PLUTONIUM OXALATES BY INTRINSIC ALPHA RADIATION. V. V. Fomin, R. E. Karmakova, and T. I. Rudenko. Soviet J. Atomic Energy, No. 5, 409-13(1956).

Decomposition of the oxalates of tri-, tetra- and hexavalent plutonium was studied in air and in a vacuum at room temperature and −80° both under illumination and in darkness. It was found that the decomposition is caused by alpha radiation from the plutonium, but in the oxalates of tetra- and hexavalent plutonium the carbon monoxide which is formed acts as a reducing agent which transforms the tetravalent plutonium to the trivalent form and the hexavalent to the tetravalent. The oxalates are then transformed into carbonates and, apparently, also partially into oxides or an oxycarbonate–carbonate mixture. (auth)



KARTUSHOVA, R.E.

Decomposition of the oxalates of plutonium under the action of its own α-radiation. V. V. Fomin, R. E. Kartushova, and T. I. Rudenko. *Atomic Energy* [U.S.S.R.] *Nuclear Energy* 4, 247-52(1956). Decomp. rates of the oxalates of tri-, quadri-, and sexivalent Pu were detd. in air and vacuum, light and dark, and at −80° and at room temp. Decomp. occurs under the action of Pu α-radiation, however, in the case of Pu(IV) and Pu(VI) oxalates the CO formed promotes reduction to Pu(III) and [illegible] carbonates and oxides, or oxycarbonates. James L. Lacy

SOV/78-3-9-18/38

AUTHORS: Fomin, V. V., Kartushova, R. Ye., Rudenko, T. I.

TITLE: The Determination of the Stability Constant of the Ions $Ce(NO_3)_x^{3-x}$ With the Aid of a Tributyl Phosphate Extraction (Opredeleniye konstant ustoychivosti ionov $Ce(NO_3)_x^{3-x}$ pri pomoshchi ekstraktsii tributilfosfatom)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 9, pp 2117-2127 (USSR)

ABSTRACT: The dependence of the distribution coefficient of trivalent cerium between a nitric acid solution and a solution of tributyl phosphate in benzene on the concentration of cerium, on the hydrogen concentrations, on the concentration of tributyl phosphate and on the nitrate ion was investigated. The radioactive isotope Ce^{144} was used as indicator in these investigations. In the investigation of the dependence of the distribution coefficient on the cerium concentration it was found that cerium does not polymerize in acid medium and the extraction does not depend on the concentration. The complex extracted has

The Determination of the Stability Constant of the Ions $Ce(NO_3)_x^{3-x}$ With the Aid of a Tributyl Phosphate Extraction

the following composition: $Ce(NO_3)_3 \cdot 3TBPh$. It was found that the distribution coefficient of trivalent cerium increases with rising hydrogen ion concentration. In contrast to this no increase of the distribution coefficients takes place in the case of the presence of salting-out compounds, e. g. $LiNO_3$. The following complex ions exist in the aqueous solution: $Ce(NO_3)^{2+}$ and $Ce(NO_3)_2^{+}$. The stability constants of these compounds are the following: 11 $\pm$ 2,5 and 32 $\pm$ 7. The equilibrium constant for the equation $Ce^{3+} + 3NO_3^{-} + 3TBPh \rightleftarrows Ce(NO_3)_3 \cdot 3TBPh$ was calculated to be 1. There are 6 figures, 7 tables, and 20 references, 10 of which are Soviet.

SUBMITTED: October 2, 1957

Card 2/3

FOMIN, V.V.; KARTUSHOVA, R.Ye.; MAYOROVA, Ye.P.

Study of the extraction of nitric acid, perchloric acid, and uranyl nitrate with tributyl phosphate solutions, using the method of isomolar series. Zhur.neorg.khim. 5 no.6:1337-1344 Je '60. (MIRA 13:7)
(Extraction (Chemistry))
(Butyl phosphate)

S/830/62/000/001/010/012
E111/E592

AUTHORS: Fomin, V.V., Mayorova, Ye.P. and Kartushova, R.Ye.

TITLE: Determination of the number of theoretical stages of an extraction column by an analytical method

SOURCE: Ekstraktsiya; teoriya, primeniye, apparatura. Ed. by A.P. Zefirov and M. M. Senyavin. Moscow, Gosatomizdat, 1962, 188-201

TEXT: An analytical method of calculating extraction for two macro-components present simultaneously is developed and exemplified by the extraction of uranyl nitrate and nitric acid with tributyl phosphate (TBP). The mass balance equations for uranium and nitric acid for each n^{th} stage of the extraction column are formulated, together with all the equilibrium constants, activity coefficients and dissociation constant of the fundamental reaction controlling this type of extraction, viz:

$$UO_{2\,aq.}^{2+} + 2NO_{3\,aq.}^{-} + 2TBP_{org.} \rightleftarrows UO_2(NO_3)_2 \cdot 2TBP_{org.};$$

$$H_{aq.}^{+} + NO_{3\,aq.}^{-} + TBP_{org} \rightleftarrows HNO_3 \cdot TBP_{org.};$$

Card 1/2

Determination of the number of ... S/830/62/000/001/010/012
E111/E592

$$2H^{+}_{aq.} + 2NO^{-}_{3\ aq.} + TBP_{org.} \rightleftarrows (HNO_3)_2 \cdot TBP_{org.}$$

The main difficulty in calculating the number of theoretical stages lies in the reaction forming solvates of nitric acid and uranyl nitrate with TBP. Because of the large errors involved, the constants for the acid were assumed to remain unchanged. Calculated values were found to be in good agreement with experimental results, viz. for initial uranium and acid concentrations of 1.26 and 2 M, respectively. An appendix is included giving a working example for calculating a theoretical stage. There are 6 figures and 6 tables.

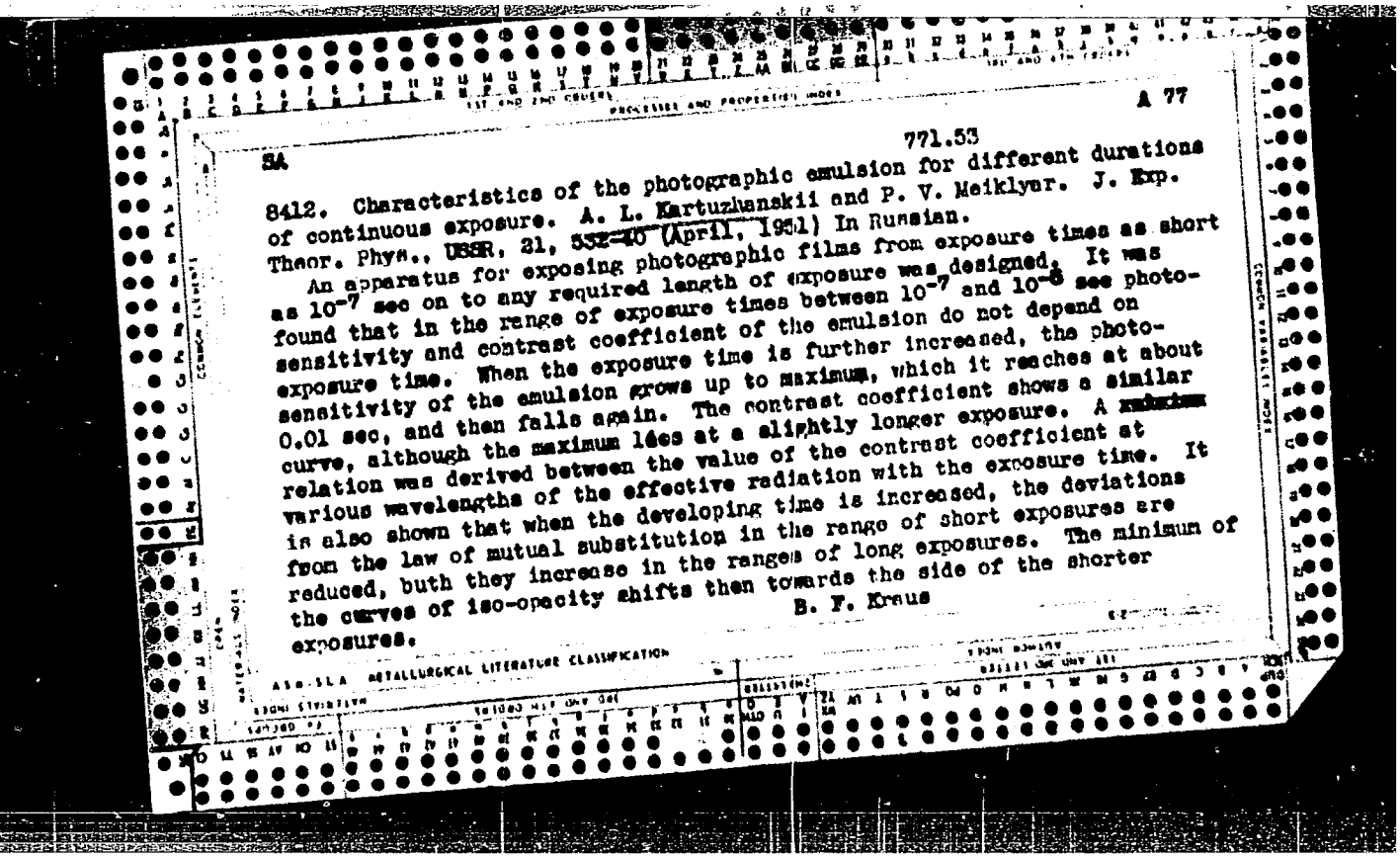
Card 2/2

FOMIN, V.V.; KARTUSHOVA, R.Ye.; MAYOROVA, Ye.P.

Extraction of uranium by mixtures of tributyl phosphate and diisoamyl ester of methylphosphonic acid. Ekstr.; teor.,prim.,app. no.2:37-46 '62. (MIRA 15:9)
(Uranium) (Butyl phosphate) (Phosphonic acid)

FOMIN, V.V.; MAYOROVA, Ye.P.; KARTUSHOVA, R.Ye.

Determination of the number of theoretical stages of an extraction column by the analytical method. Ekstr.; teor.,prim.,app. no.1:188-201 '62. (MIRA 15:11)
(Extraction apparatus)



A 77

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8412. Characteristics of the photographic emulsion for different durations of continuous exposure. A. L. Kartuzhanskii and P. V. Meiklyar. J. Exp. Theor. Phys., USSR, 21, 552-60 (April, 1951) In Russian.

An apparatus for exposing photographic films from exposure times as short as 10^{-7} sec on to any required length of exposure was designed. It was found that in the range of exposure times between 10^{-7} and 10^{-6} sec photosensitivity and contrast coefficient of the emulsion do not depend on exposure time. When the exposure time is further increased, the photosensitivity of the emulsion grows up to maximum, which it reaches at about 0.01 sec, and then falls again. The contrast coefficient shows a similar curve, although the maximum lies at a slightly longer exposure. A relation was derived between the value of the contrast coefficient at various wavelengths of the effective radiation with the exposure time. It is also shown that when the developing time is increased, the deviations from the law of mutual substitution in the range of short exposures are reduced, buth they increase in the ranges of long exposures. The minimum of the curves of iso-opacity shifts then towards the side of the shorter exposures.

B. F. Kraus

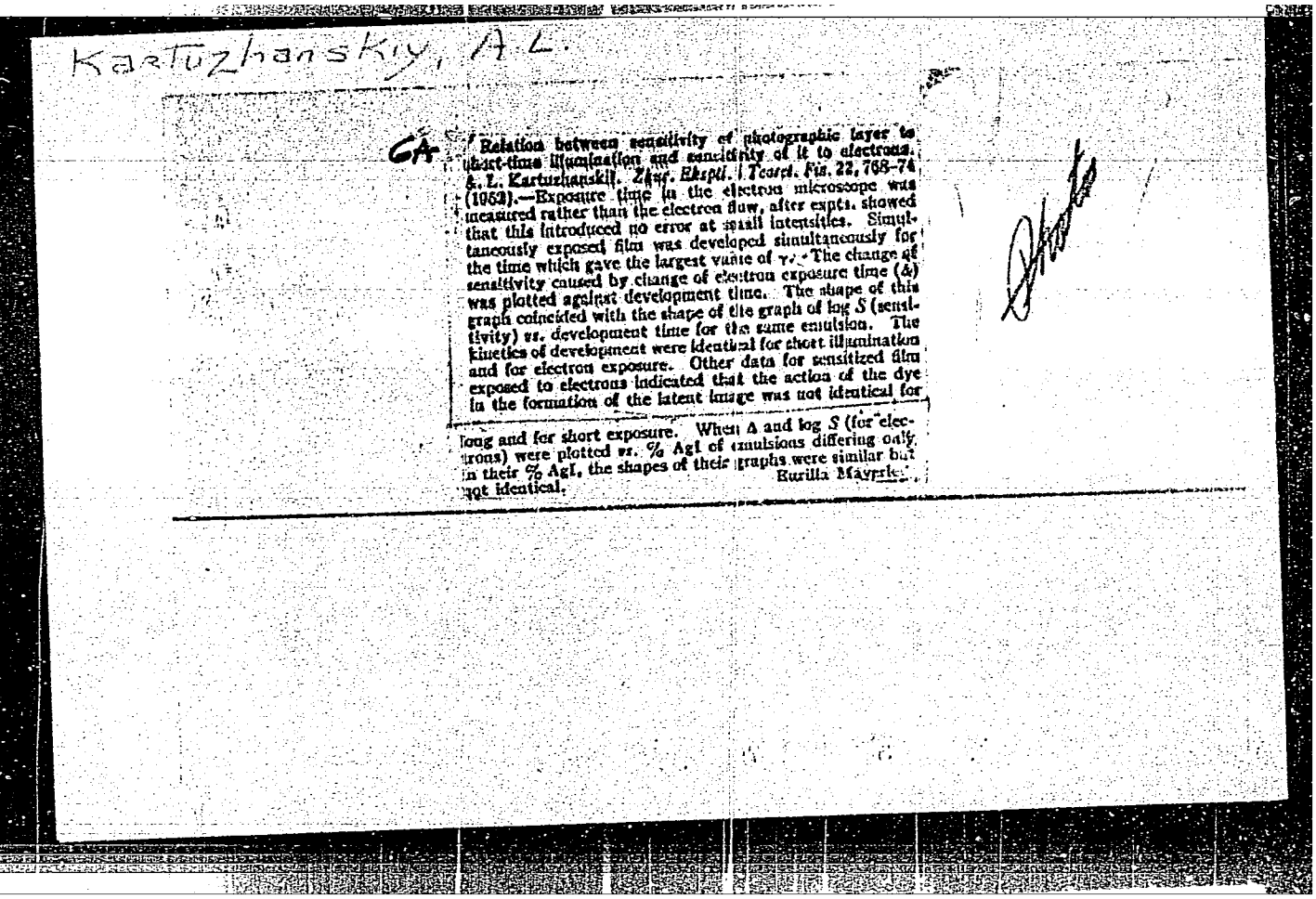
A 5A-5 L A METALLURGICAL LITERATURE CLASSIFICATION

A. L. KARTUZHANSKIY

A. L. KARTUZHANSKIY and P. V. MEIKLYAR

"Properties of the Photographic Emulsions at Different Temperatures," J. Exp. and Theoret. Physics 21: 693-700, No. 6, 1951.

This work shows no special ingenuity or originality. It is largely a repetition of work carried out by previous workers. A few new experiments were included, but they add very little. The authors carried out their experiments with considerable care, and the experimental results appear to be correct. However, the interpretation of the results, in some cases, is open to question. The authors have done previous work in photographic research, but this appears to be one of their first jobs on effects of temperature variation.



Kartuzhanskiy, A.L.

GA

Relation between sensitivity of photographic layer to short-time illumination and sensitivity of it to electrons. A. L. Kartuzhanskii. *Zhur. Eksptl. i Teoret. Fiz.* 22, 768–74 (1952).—Exposure time in the electron microscope was measured rather than the electron flow, after expts. showed that this introduced no error at small intensities. Simultaneously exposed film was developed simultaneously for the time which gave the largest value of γ. The change of sensitivity caused by change of electron exposure time (Δ) was plotted against development time. The shape of this graph coincided with the shape of the graph of log S (sensitivity) *vs.* development time for the same emulsion. The kinetics of development were identical for short illumination and for electron exposure. Other data for sensitized film exposed to electrons indicated that the action of the dye in the formation of the latent image was not identical for long and for short exposure. When Δ and log S (for electrons) were plotted *vs.* % AgI of emulsions differing only in their % AgI, the shapes of their graphs were similar but not identical.

Burilla Mayrick

KARTUZHANSKIY, A.L.

Infringement of the photochemical reciprocity law of photographic films. (MLRA 6:11)
Usp.fiz.nauk 51 no.2:161-203 O '53.
(Photochemistry) (Photographic chemistry)

KARTUZHANSKIY, A.L.

FD-730

USSR/Physics - Photography

Card 1/1 : Pub 146-18/18

Author : Kartuzhanskiy, A. L. (Leningrad)

Title : Effect of ionic conductivity on deviations from the law of inter-substitution for photographic layers

Periodical : Zhur. eksp. i teor. fiz., 26, 763-764, Jun 1954

Abstract : Letter to the editor. Attempts to determine experimentally the position of the boundary within which the law of inter-substitution holds, depending on the chemical composition of the emulsion crystals and the related variations in conductivity. Presents results in graphs and tables. Nine references, including 5 foreign.

Submitted : February 22, 1954

KARTUZHANSKIY, A. L.

USSR/Physics

Card 1/2

Author : Kartuzhanskiy, A. L.

Title : Mechanism of the photo-effect of ionizing particles

Periodical : Usp. Fiz. Nauk, 52, Ed. 3, 341 - 376, March 1954

Abstract : As is known a photo layer represents a combination of very small silver halide crystals, mostly AgBr with small admixture of AgJ suspended in gelatin. The passing of ionizing particles through such a layer makes the crystals affected by the particles, or at least part of these crystals, capable of developing, i. e. capable of reducing into metallic silver under the effect of the developing solution. The review presented here pertains to two basic problems, namely: the passing of ionizing particles through the substance the exceptional case of which is the passing of particles through a photo layer, and the nature of the processes taking place in the photo layer which in the final outcome lead to its development; the second problem, which is closer to the subject of the review, will be analyzed more thoroughly. Special consideration is given to the behavior of the individual silver halide emulsion crystal because the

Usp. Fiz. Nauk, 52, Ed. 3, 341 - 376, March 1954 (additional card)

Card 2/2

Abstract : processes occurring in the individual crystal are the basis of photo registration of particles regardless of whether the action of the particles results in a single trace or uniform blackening. The passing of a charged particle through a substance is accompanied by many acts of ionization of atoms or molecules constituting this substance. It is only natural to assume that the photo-effect of the particle is determined by its ability to carry out ionization in emulsion crystals leading to the formation of free conductivity electrons in these crystals. Sixty-seven references. Graphs.

Institution : .....

Submitted : .....

KARTUZHANSKIY, A. L.

Properties of photographic layers at continuous illumination of different durations and at intermittent illumination.
GA A. L. Kartuzhanskiĭ. *Uspekhi Nauch. Fot., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 3, 66–75(1955).—In the continuous-illumination expts., the duration of illumination varied from 10^{-7} to 10^{+4} sec. and the temp. from +60° to −180°. In the expts. with intermittent illumination the duration of separate light impulses varied from 10^{-6} to 10^{+1} sec., the no. of light impulses from 1 to 40,000, and the ratio of the duration of lighted intervals to dark intervals from 1:2 to 1:10,000. The actions of the 2 kinds of illumination are different, owing to processes occurring in the dark periods.
Burilla Mayerle

KARTUZHANSKIY, A.L.

GA Critical frequency for photographic action of intermittent illumination. A. L. Kartuzhanskii. *Uspekhi Nauch. Fot.*, *Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 3, 76–81(1955).—Above the "critical" frequency, light sensitivity does not depend on frequency, but below this frequency sensitivity increases as frequency decreases. Reactions of the Ag halide crystals which occur during the dark periods and are unrelated to the action of light cause this. Eurilla Mayerle

KARTUZHANSKIY, A.L.

FD-2916

USSR/Physics - Photography

Card 1/1 Pub. 146 - 16/19

Author : Kartuzhanskiy, A. L. (Leningrad)

Title : Photographic action of ionizing particles. I: The shape of the blackening curve of the photographic layer irradiated by particles

Periodical : Zhur. eksp. i teor. fiz., 29, 4 Oct 1955, 516-528

Abstract : The author investigates the shape of the curve expressing the density of blackening of the photographic layer irradiated by particles as a function of exposure. The data obtained for layers of various sensitivities and for various particles and also data on the action of additional illumination are utilized for information on the dispersion of the forming latent image. He obtains D=f(H) for 6 films irradiated by alpha and beta particles of various energies and shows that the form of the initial part of this curve D=f(H) characterizes the dispersion of the latent image obtained. He establishes that with decrease in the ionizing capacity of particles and sensitivity of the layer the dispersion of the latent image increases. Fourteen references.

Institution :

Submitted : June 15, 1954

FD-3206

USSR/Physics - Radiography

Card 1/1 Pub. 153-15/28

Author : Finagina I. L., Kartuzhanskiy A. L. and Soltitzkiy B. P.

Title : Quantitative radiography of plant species

Periodical : Zhur. Tekh. Fiz., 25, No 7, 1276-1279, 1955

Abstract : A simple method was devised for observing the amount of radioactive materials in plants, in particular the absorption of the isotope P^{32} by wheat and beans. Plotted curves of blackening density versus radiation intensity facilitated the measurement of absolute values of radiation intensity in an arbitrary point of the radiograph and thence the activity and mass of the radioactive material. Three USSR and one British references.

Institution :

Submitted : November 8, 1954

Kartuzhanskiy, A.L.

K-11

USSR/Optics - Photography

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 13220

Author : Kartuzhanskiy, A.L.

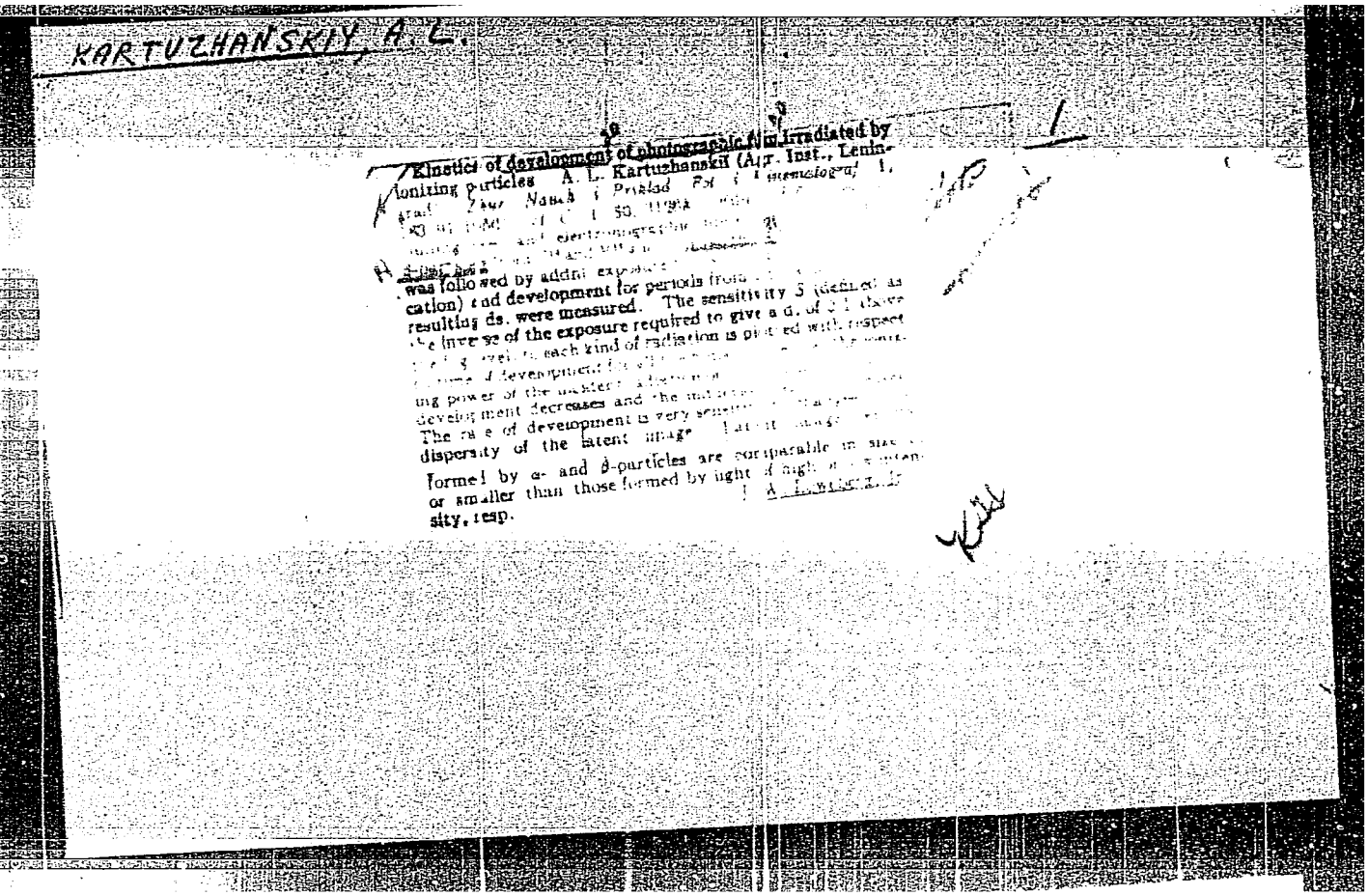
Inst : Leningrad Agricultural Institute, USSR.

Title : Critical Frequency of Continuous Illumination of the Photographic Emulsion and Relaxation Processes in Emulsion Crystals.

Orig Pub : Zh. nauch. i prikl. fotografii i kinematogr., 1956, 1, No 1, 10-18

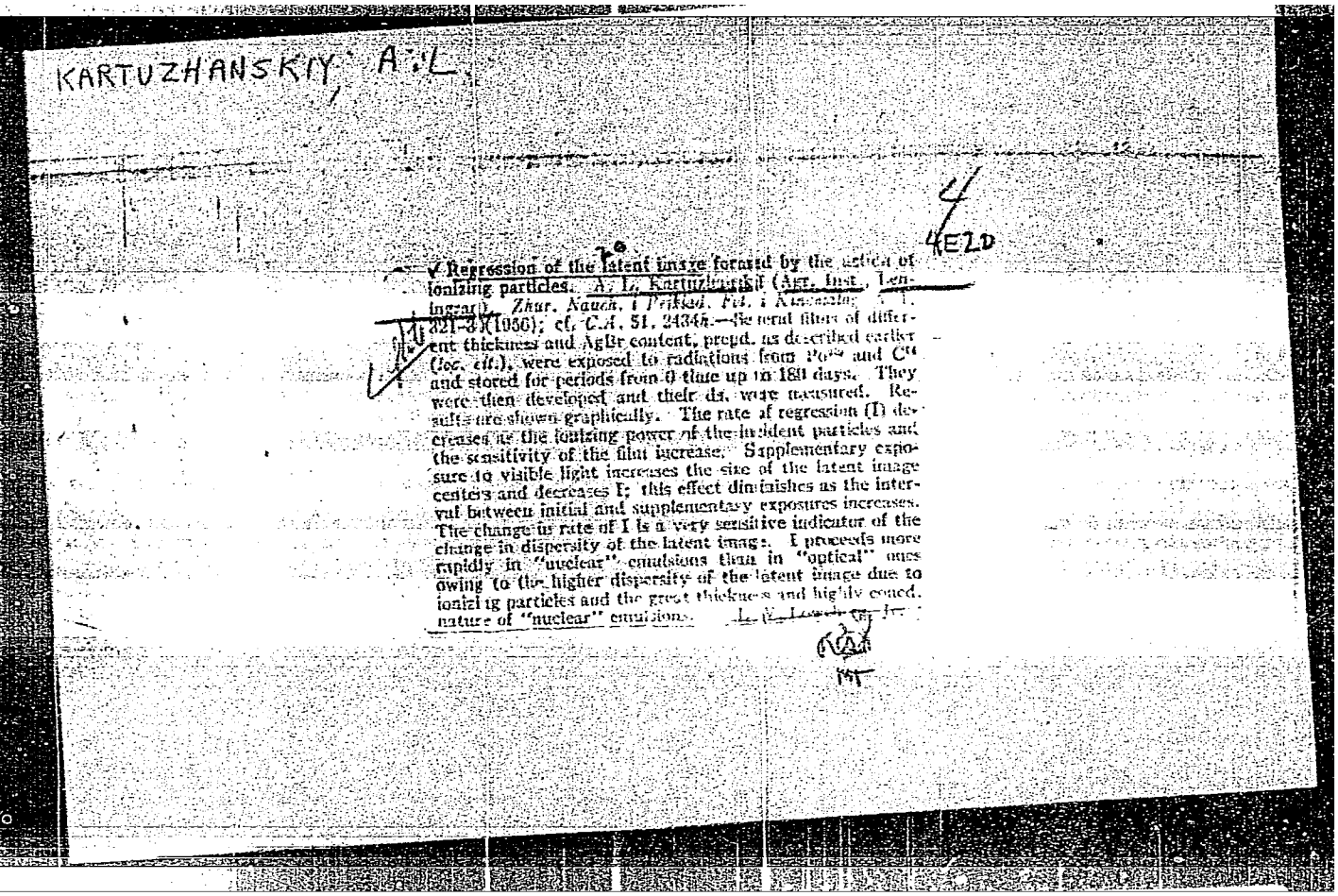
Abstract : The author examines the dependence of the photographic action of light on the frequency of interruption of the light flux at various levels of illumination and at various ratios of the duration in the light pylses and dark pauses. Many plots that illustrate this dependence under various experimental conditions are given. The resultant

Card 1/2



KARTUZHANSKIY, A. L.

Kinetics of development of photographic film irradiated by ionizing particles. A. L. Kartuzhanskii (Agr. Inst., Leningrad). Zhur. Nauch. i Prikład. Fot. i Kinematografii, 1, [illegible]. [illegible] was followed by addit. exposure [illegible] cation) and development for periods from [illegible] resulting ds. were measured. The sensitivity S (defined as the inverse of the exposure required to give a d. of 0.1 above [illegible] for each kind of radiation is plotted with respect [illegible] of development [illegible] ing power of the emulsion [illegible] develop ment decreases and the [illegible] The rate of development is very sensitive [illegible] dispersity of the latent image [illegible] formed by α- and β-particles are comparable in size [illegible] or smaller than those formed by light of high [illegible] sity, resp. [illegible]



KARTUZHANSKIY, A. L.

4
4E2D

Regression of the latent image formed by the action of ionizing particles. A. L. Kartuzhanskii (Agr. Inst., Leningrad). *Zhur. Nauch. i Prikhol. Fot. i Kinematog.* 1, 321–31(1956); cf. *C.A.* 51, 2434h.—Several films of different thickness and AgBr content, prepd. as described earlier (*loc. cit.*), were exposed to radiations from Po^{210} and C^{14} and stored for periods from 0 time up to 180 days. They were then developed and their ds. were measured. Results are shown graphically. The rate of regression (I) decreases as the ionizing power of the incident particles and the sensitivity of the film increase. Supplementary exposure to visible light increases the size of the latent image centers and decreases I; this effect diminishes as the interval between initial and supplementary exposures increases. The change in rate of I is a very sensitive indicator of the change in dispersity of the latent image. I proceeds more rapidly in "nuclear" emulsions than in "optical" ones owing to the higher dispersity of the latent image due to ionizing particles and the great thickness and highly coned. nature of "nuclear" emulsions. L. K. Lowder

KARTUZANSKIY, A.L.

CARD 1 / 2 PA - 1422

SUBJECT USSR / PHYSICS
AUTHOR KARTUZANSKIJ, A.L.
TITLE On the Rearrangement of the Latent Image in the Case of the Photographic Effect of Ionizing Particles.
PERIODICAL Dokl.Akad.Nauk, 109, fasc.2, 285-288 (1956)
Issued: 9 / 1956 reviewed: 10 / 1956

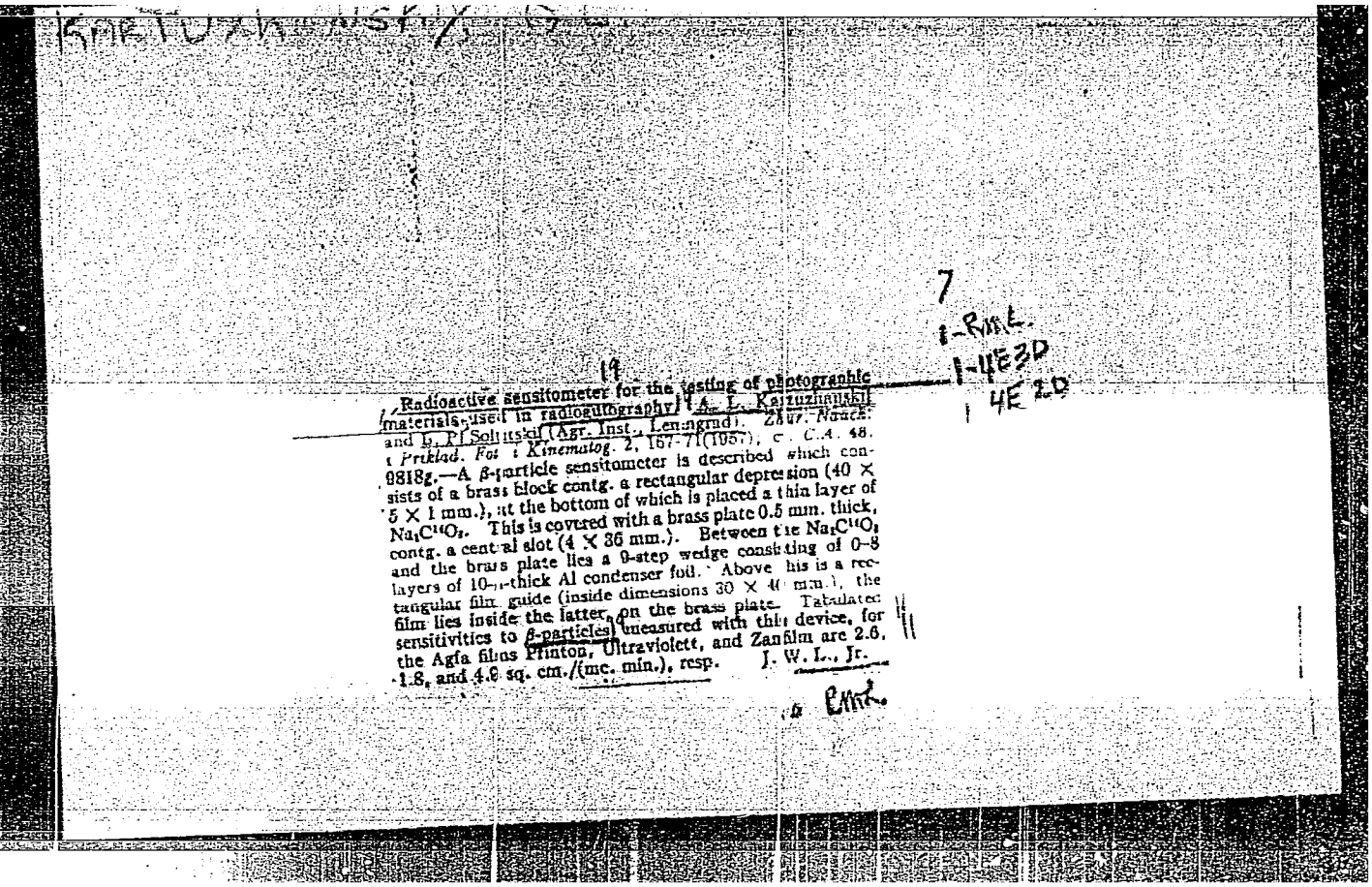
In view of the great similarity between the photographic effects of short exposures and ionizing particles the rearrangement of latent images probably takes plase also after the effect produced by ionized particles on the crystal ends. This is best proved indirectly on the basis of some immediate conclusions drawn from the rearrangement. The factor at issue is the existing or lacking capacity of an emulsion crystal to register particles of a particular type and energy. This capacity depends entirely on the rearrangement of the latent image. In the crystal N activity centers are supposed to exist which have the same energetic depth with respect to the conductivity band. All conductivity electrons occurring in the crystal on the occasion of the passage of a particle are to be used for the production of Ag-atoms, i.e. there is to be no recombination. In that case n separate Ag-atoms are produced in the crystal 10^{-5} sec after the passage of the particle, and of these N-atoms occupy the activity centers, while the remaining n - N are produced near chance destructions of the lattice structure of the crystal. After rearrangement only N-centers, consisting of several atoms each, probably remain.
The probability W of this process is derived on the basis of a spherical model

Dokl.Akad.Nauk,109, fasc.2, 285-288 (1956)

and the properties of the probability function W(n) are discussed. For the reliable existence of a center with at least n_o-atoms in the crystal the condition $n \gg N(n_o-1) + 1$ must be satisfied. In the case of a given value of n, W(n) decreases with increasing N. Physically this means a reduction of the probability of the creation of a creation center by rearrangement in the case of a growing number of activity centers. This is also plausible because the centers compete with one another.

Next, the values of n, n_o and N are determined for the purpose of comparing the formula for W and the aforementioned inequation with the experiment. In order to know n it is only necessary to know the dimensions of the emulsion crystal and the ionization capacity of the particle passing through the crystal. n_o is best determined for the incompatibility under the effect of a long and not intense exposure, and for N only some data obtained by the electron-microscopic examination of emulsion crystals can be employed. The limits mentioned are verified for the limits of lower and higher values of n and in both cases they are in agreement with the experiment. For the registration of weakly ionizing particles no emulsion with large crystals must be used.

INSTITUTION: Leningrad Agricultural Institute.



19

Radioactive sensitometer for the testing of photographic materials used in radiography. A. L. Kaizuzhanskii and L. P. Solntsev (Agr. Inst., Leningrad). *Zhur. Nauch. i Prikład. Fot. i Kinematog.* 2, 167-71(1957). C. C.A. 48, 9818g.—A β-particle sensitometer is described which consists of a brass block contg. a rectangular depression (40 × 5 × 1 mm.), at the bottom of which is placed a thin layer of $Na_2C^{14}O_3$. This is covered with a brass plate 0.5 mm. thick, contg. a central slot (4 × 36 mm.). Between the $Na_2C^{14}O_3$ and the brass plate lies a 9-step wedge consisting of 0–8 layers of 10-μ-thick Al condenser foil. Above this is a rectangular film guide (inside dimensions 30 × 40 mm.), the film lies inside the latter, on the brass plate. Tabulated sensitivities to β-particles measured with this device, for the Agfa films Printon, Ultraviolett, and Zanfilm are 2.6, 1.8, and 4.0 sq. cm./(mc. min.), resp. J. W. L., Jr.

7
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1-4E2D
4E 2D

KARTUZHANSKIY, A. L.

Sensitivity of photographic layers to β-emission of various energies. A. L. Kartuzhanskii and B. P. Sotnikshii (Agr. Inst., Leningrad). *Zhur. Nauch. i Prikład. Fot. i Kinematog.* 2, 244-8(1957); cf. *C.A.* 52, 4386f.—The sensitivities (*S*) of 6 plates and films to β-rays from Cl^{36}, S^{35}, Cu^{64}, Co^{60}, Se^{75}, and P^{32} were measured with modified forms of the sensitometer described earlier (*loc. cit.*). The logarithm of *S* in sq. cm./(mc.-min.) for each plate is plotted with respect to that of the av. β-ray energy in m.e.v. Values of *S* corresponding to β-rays from Cl^{36} (0.05 m.e.v.), Co^{60} (0.09 m.e.v.), and P^{32} (0.195 m.e.v.) are given in that order for the following plates. electronographic, 0.65, 0.46, −1.59; diapos., −0.92, −0.50, −1.44; spectral (type 1), 0.13, −0.13, −0.66; Agfa Printon, 0.42, 0.17, −0.62; Agfa Ultraviolet, 0.27, 0.00, −0.83; nuclear (for α-particles), −0.06, −0.33, −1.22; nuclear (for relativistic electrons), 1.20, 1.10, 0.80; Agfa Zaufilm (x-ray film), 0.69, 0.51, −0.21.

J. W. Loweberg, Jr.

KARTUZHANSKIY, A.L.

"Theory of the photographic process" [in Polish] by Witold Romer. Reviewed by A.L. Kartuzhanskii. Zhur.nauch.i prikl.fot.i kin. 2 no.4:319-320 Jl-Ag '57. (MIRA 10:7)
(Photography)

KARTUZHANSKIY, A.L.

"Photographic and cinematographic sensitometry of black-and-white materials" [in Polish] by Mikolaj Iliński. Reviewed by A.L. Kartuzhanskii. Zhur.nauch.i prikl.fot.i kin. 2 no.4:320 Jl-Ag '57. (MLRA 10:7)

(Photographic sensitometry)

KARTUZHANSKIY, A.I.

AUTHOR SOLTITSKIY, B.P., and KARTUZHANSKIY, A.I. PA - 2552

TITLE Measurement of Very Low Concentrations of α -Radiators in Vegetable Objects by means of Thick Layer Photoplates. (Izmereniye ves'ma malykh kontsentratsiy α -izluchateley v rastitel'nykh ob"yektakh s pomoshch'yu tolstosloynykh fotoplastinok, Russian)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 3, pp 606 - 613 (U.S.S.R.)

Redeived: 4 / 1957 Reviewed: 5 / 1957

ABSTRACT: The method of V.Barnes (Chemistry, Vol 27, Nr 1, 43, 1953) was applied to the field of very low concentrations, i.e. which were smaller by some few magnitudes. The corresponding methodology is described and the analysis of possible errors in connection with its application is given. In addition, details on the application of this method for biological problems are included. At first the setting up of the comparative measures is described. U^{238}, Ra^{226}, and Po^{210} in form of a nitrate were used. Sand, filter paper, and water served as carriers. Photographic evaluation and measuring of the plates is described. For the registration of the α -particles highly sensitive plates (destined for β -radiations) were used. An area of 1 cm^2 was eliminated and the traces were counted. The process of eliminating the parasitic traces is described. Calibration of the photo plates was carried out with the aid

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Measurement of Very Low Concentrations of α-Radiators in Vegetable Objects by means of Thick Layer Photoplates.

of a Po^{210}-radiator set in two different ways. Either the time of irradiation or activity was varied. The method was applied to the investigation of gene-transmission in the case of wheat, peas etc. The transmission of symptoms on the following generation was indisputably ascertained. Similar investigations were carried out with rabbits and fowls.
(3 tables and 4 illustrations)

ASSOCIATION: Agricultural Institute Leningrad
PRESENTED BY:
SUBMITTED 28.11.1955
AVAILABLE: Library of Congress.

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20-114-6-17/54

AUTHOR: Kartuzhanskiy, A. L.

TITLE: On the Quantitative Aspect of the Process of Latent Photographic Image Formation by Ionizing Particles (K kolichestvennomu rassmotreniyu protsessa obrazovaniya skrytogo fotograficheskogo izobrazheniya ioniziruyushchimi chastitsami)

PERIODICAL: Doklady Akademii Nauk SSSR,1957,Vol.114,Nr 6,pp.1199-1202(USSR)

ABSTRACT: By the aid of the here given formulae the factor P which characterizes the probability of the development can be determined, provided that the volume contraction C_{vol} of AgHal in the emulsion, the diamter d of the emulsion crystal which is assumed to be ball-shaped, and the experimentally to be determined quantity $\vartheta = 3C_{vol}/2d$ are known. Then also the minimum path l, which conditions the photographically active passage of a given particle through a crystal in a given emulsion, can also be determined. For l the expression $l = d\sqrt{1 - (2\vartheta d/3C_{vol}}$ is used and the following biquadratic equation is obtaimd (which has a real, positive root):

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KARTUZHANSKIY A. L.

ZHDANOV, A. P., KARTUYANSKIY, A. L., KUZ'MIN, V. N., RYZHKOVA, I. V., FEDOTOV, P. I., and SHUR, L. I., (Moscow, USSR)

"Preparation Des Emulsions Nucleaires et Mecanisme De Leur Sensibilisation Par La Triethanolamine."

paper presented at Proggam of the second International Collogquium on Corpuscular Photography. Montreal, 21 Aug - 7 Sep 1958.

Encl: B-3,114,647.

KARTUZHANSKIY, A.L.

Electron microscopic study of the centers of light sensitivity in the emulsion crystals of photographic layers. Zhur. nauch. i kin. 3 no.1:16-18 Ja-F '58. (MIRA 11:2)

1.Gosudarstvennyy opticheskiy institut im. S.I. Vavilova.
(Photographic emulsions)

KARTUZHANSKIY, A.L.

ZHDANOV, A.P.; KARTUZHANSKIY, A.L.; RYZHKOVA, I.V.; SHUR, L.I.

Effect of triethanolamine on photographic emulsions sensitive to particles of a minimal ionizing capacity. Zhur. nauch. i prikl. fot. i kin. 3 no.1:53-54 Ja-F '58. (MIRA 11:2)

1.Radiyevyy institut imeni V.G. Khlopina AN SSSR.
(Photographic emulsions)
(Ethanol)

KARTUZHANSKIY, A.L.

Some new data on the nature of photographic sensitivity to ionizing particles. Zhur. nauch. i prikl. fot. i kin. 3 no.2: 81-87 Mr-Ap '58. (MIRA 11:5)

1. Leningradskiy sel'skokhozyaystvennyy institut.
(Photographic sensitometry)

ZHDANOV, A.P.; KARTUZHANSKIY, [illegible].L.; SHUR, L.I.

Interpretation of experiments on increasing the sensitivity of nuclear photographic emulsions by means of triethanolamine. Zhur. nauch. i prikl. fot. i kin. 3 no.2:139-140 Mr-Ap '58. (MIRA 11:5)

1.Radiyevyy institut im. V.G. Khlopina AN SSSR.
(Photographic emulsions)

Sov 77-3-4-9/23

AUTHORS: Zhdanov, A.P.; Kartuzhanskiy, A.L.; Ryzhkova, I.V.; Shur, L.I.

TITLE: The Mechanism of the Sensitizing Action of Triethanolamine on Photographic Emulsions (O mekhanizme sensibiliziruyushchego deystviya trietanolamina na fotograficheskiye emul'sii)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 4, pp 281-282 (USSR)

ABSTRACT: The author carried out experiments to determine the nature of the sensitizing effect of triethanolamine on photographic emulsions. He found that it was effective only up to the time of exposure and is therefore not connected with the development process. Triethanolamine has only a very insignificant, if any, function as an acceptor of haloid atoms during exposure. The experiments contradicted the assumption of the silver nature of the centers of sensitivity but bears out Mitchell and Mott's hypothesis as to their nature. The triethanolamine's alkalinity is essential to its action. In a reaction of AgHal with it or with an alkali, AgOH is formed but the further reaction - $AgOH \rightarrow Ag_2O \rightarrow Ag$ - takes place without their participation. The author finally concludes that the end result of the action of triethanolamine on the emulsion crystals is the formation of subcenters of development sited

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The Mechanism of the Sensitizing Action of Triethanolamine on Photographic Emulsions

primarily on the centers of sensitivity. There are 9 references, 6 of which are Soviet, 2 English and 1 American.

ASSOCIATION: Radiyevyy institut im. V.G. Khlopina Akademii nauk SSSR (The Radium Institute imeni V.G. Khlopin, Academy of Sciences, USSR)

SUBMITTED: March 1, 1958

1. Triethanolamine--Photochemical reactions 2. Photographic emulsions --Materials 3. Photographic emulsions--Sensitivity

AUTHORS: Kartuzhanskiy, A.L.; Soltitskiy, B.P. SOV 77-3-4-19/23

TITLE: A Review of Soviet Works on the Photographic Action of Ionizing Particles (Obzor sovetskikh rabot po fotograficheskomu deystviyu ionizuyushchikh chastits)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 4, pp 299-306 (USSR)

ABSTRACT: The article is limited to a review of those works by Soviet scientists dealing with the basic principles of the photographical method and with explaining the nature of the photographic action of ionizing particles. The practical part is devoted to work connected with the development of new emulsions for use in nuclear physics to record the passage of particles. L.V. Mysovskiy, N.A. Perfilov and A.P. Zhdanov were active in this field and V.V. Alpers produced an emulsion chamber. The theoretical side is covered by works dealing with the mechanism of the photographic emulsion itself: the loss of energy by the particles among the emulsion crystals, latent image formation, the size of photosensitive centers, methods of redistribution Ag among centers to increase their power of developing latent images, the dispersion of centers, intensification of highly-dispersed latent images

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A Review of Soviet Works on the Photographic Action of Ionizing Particles

by further exposure, regression of latent images and the sensitivity of nuclear emulsions. The scientists active in these fields are: K.S. Bogomolov, V.V. Alpers, A.P. Zhdanov, Shur, A.L. Kartuzhanskiy, V.N. Zharkov, I.A. Kovner, Gershel', P.V. Mayklyar, S.G. Grenishin, L.M. Biberman, I.A. Fomina, B.P. Soltitskiy, N.A. Perfilov, G. Treubergenova, B.I. Kazantsev. There are 53 references, 51 of which are Soviet, 1 German and 1 French.

1. Particles--Photographic analysis 2. Photographic emulsions --Development 3. Photographic emulsions--Properties

AUTHOR: Kartuzhanskiy, A.L. SOV-77-3-5-16/21

TITLE: Some Comments in Connection with the Works of K.S. Bogomolov and his Co-Workers on the Radiolysis of Silver Halide (Nekotoryye zamechaniya v svyazi s rabotami K.S. Bogomolova i yego sotrudnikov po radiolizu galoidnogo serebra)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 5, pp 386-388 (USSR)

ABSTRACT: The author discusses Bogomolov's theories on the energy losses of ionizing particles in the formation of the latent image, and expresses his own view that 5.8 ev are consumed in the liberation of one electron in the emulsion AgBr crystal and that the energy losses arise through the recombination of electrons. Crystals hit by particles develope when the path of the particle is above a certain minimum value, which can be determined from the density of the particle's track, given the volumetric concentration of AgHal in the emulsion and the size of the crystals. If the specific energy losses of a given particle are known, the number of conductivity electrons liberated by the particle in the crystal may be found. Assuming that the formation of a center of development in the crystal is brought about by a regrouping

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Some Comments in Connection with the Works of K.S. Bogomolov and his Co-Workers on the Radiolysis of Silver Halide

of the latent image, consisting of single Ag atoms, it is possible to estimate whether all the electrons of conductivity in the crystal have been used for the formation of Ag atoms, if we know the minimum size of the center of development for a given emulsion (found by P.E. Meyklyar's method from the phenomenon of non-interreplaceability) and the probability of the formation of such a center. Numerical examples for the calculation of the energy losses in various emulsions are given. The author concludes that chemical maturation, together with an increase in sensitivity, decreases the energy losses. As the size of the crystals increases, energy losses also increase, which may be accounted for by an increase in the probability of recombination, making it more difficult for electrons and positive holes to come to the surface of the crystal. There are 10 references, 7 of which are Soviet, 1 Italian, 1 Dutch and 1 English.

1. Photographic emulsions--Properties 2. Silver halides--Electrochemistry 3. Photographic emulsions--Theory

AUTHOR: Kartuzhanskiy, A.L. SOV-77-3-5-18/21

TITLE: On K.S. Bogomolov's Reply to Our Comments (Po povodu otveta K.S. Bogomolova na nashi zamechaniya)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 5, p 389 (USSR)

ABSTRACT: The author does not consider that Bogomolov has countered any of the points he made: 1) that B.'s experiments may be interpreted as proof, not of the increase of energy losses in liberating an electron of conductivity, but of increased loss of electrons. 2) An increase of energy losses with a decrease in the size of the emulsion crystals is due to a parallel change in their sensitivity. The author proposes further experiments to solve this controversy. The quantum effeciency should be measured by Bogomolov's method in conditions of pulse micro-second exposure. The value of the quantum efficiency will indicate which of the two theories is correct.

1. Photographic emulsions--Properties 2. Photographic emulsions --Theory 3. Silver haldies--Electrochemistry

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AUTHORS: Zhdanov, A. P., Kartuzhanskiy, A. L., Ryzhkova, I. V., Shur, L. I. 20-118-4-33/61

TITLE: The Action of Triethanolamine on Photographic Emulsions (Deystviye trietanolamina na fotograficheskiye emul'sii)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 4, pp. 744-746 (USSR)

ABSTRACT: The authors investigated the influence of triethanolamine on the photosensitivity of an emulsion on various illumination conditions and used the so obtained results for the explanation of the mechanism of the sensitizing effect of triethanolamine in analogy with the other types of sensitisation. Besides, the action of ionizing particles upon the same emulsions was investigated. The authors examined the behaviour of 7 different emulsions. The exposure was made by an impulse-like source (duration of the flash $1,2.10^{-6}$ sec) and by a low-voltage bulb (duration of exposure 5 to 45 seconds) through a neutral-grey stepped absorption wedge with the constant 0,17. The exposure with α- and β-rays was made by Po^{210} and by a

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The Action of Triethanolamine on Photographic Emulsions 20-118-4-33/61

β-radioactive sensitometer. Besides, an exposure with recoil-protons of a Ra-Be - neutron source was made. The development was performed under the usual conditions and the densities were measured by the photoelectric microphotometer MF - 2. A diagram illustrates the dependence of the sensitivity on the concentration of the triethanolamine for all the investigated emulsions. All emulsions become more sensitive the lower the photosensitivity of the original emulsion is; in the case of a few emulsions with low sensitivity this increase amounts to 1,5 orders of magnitude. The action of the triethanolamine always is somewhat stronger for the initial domain (i.e. for the bigger emulsion crystals). The optimum concentration for the sensitivity increase is 1-2 %. A further increase of the concentration does not increase the sensitivity, but the blurring. A bathing in triethanolamine does not give any increase of the sensitivity and therefore the action of triethanolamine is not connected with the process of development. The dependence of the sensitivity of one of these nuclear emulsions on the concentration of triethanolamine for the various sorts of radiation is illustrated in

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5(4),23(5)
AUTHORS: Zel'tser, G. I., Kartuzhanskiy, A. L. SOV/20-123-3-32/54

TITLE: On the Theory of the Sensitivity Fluctuations of the Crystals of Nuclear Photographic Emulsions (K teorii fluktuatsiy chuvstvitel'nosti kristallov yadernykh fotograficheskikh emul'siy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 3, pp 495-497 (USSR)

ABSTRACT: K. S. Bogomolov's (Refs 1, 2) attempt to develop a theory of ionization fluctuations in an emulsion consisting of homogeneous crystals failed because of non-agreement with experiments. Besides, the failures of this theory showed that the ionization fluctuations play only a minor part even with respect to relativistic particles, and that the experimentally determined fluctuations of the average density of particle traces in the emulsions are rather due to sensitivity fluctuations of the individual crystals. The present paper deals with a suitable variant of this theory. According to theory, the effect produced by the sensitizer may be considered as equivalent to the production of $\nu_0 \Delta n$ silver atoms without exposure. Next, the distribution of these silver atoms over $\nu_0 - \nu_n$ crystals is investigated. ν_n denotes the density of the trace before

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On the Theory of the Sensitivity Fluctuations of the Crystals of Nuclear Photographic Emulsions

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sensitation and V_o - the number of crystals located on the track unit. The problem to be solved in this connection is that regarding the share of urns containing a minimum number of balls in the total number of urns in the case of a random distribution of r indistinguishable balls (silver atoms) over s urns (crystals). The calculation process is outlined and the resulting formulae are explicitly written down. These formulae contain no arbitrary parameters and may be applied also to the ultrafine-grained emulsions of N. A. Perfilov and may be used for the purpose of calculating the veil accompanying the secondary sensitation of one and the same emulsion. There are 11 Soviet references.

PRESENTED: June 25, 1958, by A. F. Ioffe, Academician

SUBMITTED: June 21, 1958

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5(4), 23(5)

SOV/20-123-5-29/50

AUTHORS: Zhdanov, A. P., Kartuzhanskiy, A. L., Ryzhkova, I. V., Shur, L.I.

TITLE: The Conservability of a Latent Image and of Sensitivity in Nuclear Photoemulsions Sensitized by Triethanolamine (Sokhranyayemost' skrytogo izobrazheniya i chuvstvitel'nosti v yadernykh fotoemul'siyakh, sensibilizirovannykh trietanolaminom)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 5, pp 874-877 (USSR)

ABSTRACT: The treatment of nuclear photoemulsions with triethanolamine increases their sensitivity for any kind of particles (also for relativistic particles). Subcenters are formed in the reactions of triethylamine with AgHal in the emulsion crystals on the sensitivity centers. The conversion of these subcenters into centers of development proceeds with a markedly higher efficiency than the formation of such centers in the absence of subcenters. The present paper gives the corresponding experimental results together with the results of experiments which were carried out in order to explain

The Conservability of a Latent Image and of Sensitivity in Nuclear Photoemulsions Sensitized by Triethanolamine

some details of the mechanism of the sensitizing of triethylamine. The experiments wer carried out at temperatures of 5^{0}-6^{0} on various specimens of the emulsion NIKFI type R which were irradiated by relativistic electrons. The first table gives data concerning the regression and the degree of conservation of 2 specimens of emulsions. An increase of triethanolamine in concentration does not cause an essential increase in density of the track. The track increases slightly ($\sim$10%) in density. The data of the first table make it possible to draw the following conclusion: The sensitivity and the latent image of emulsions sensitized by triethanolamine are totally conserved within the investigated time intervals and within the corresponding experimental errors. This property of triethanolamine is as essential as its sensitizing effect. The second table gives data which confirm the conclusion (Ref 4) that the sensitizing effect of triethanolamine is not due to its presence in the emulsion